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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,745	01/19/2005	Michael Richard Richardson	19939 (XA2019)	7026

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EXAMINER	
MCKIE, GINA M	

ART UNIT	PAPER NUMBER
2611	

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06/22/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/521,745	RICHARDSON, MICHAEL RICHARD	
	Examiner	Art Unit	
	GINA MCKIE	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 April 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 23, 2009 has been entered.

Response to Amendment

2. Acknowledgement is made of the amendment filed April 23, 2009. Claims 1 and 3 remain pending in the application.

- Claim 1 is currently amended.
- Claims 2 and 4 have been previously canceled.
- No claims are new.

Response to Arguments

3. Applicant's arguments with respect to independent claim 1 have been considered but are moot in view of the new ground(s) of rejection.

New Grounds of Rejection

4. The new grounds of rejection presented below are made in response to the Applicant's request for continued examination under 37 CFR 1.114. New references are cited.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bolinth et al. (US 2004/0022175 A1) in view of Dey et al. (US 2005/0073947 A1).

Regarding claim 1:

As shown in figures 1-16, Bolinth discloses a method for digitally processing a signal in a frequency domain containing regular elements of unwanted signal (**see ¶ [0050]; "…harmonic interference signals…"**), the method comprising the steps of:

- (i) establishing timing characteristics of the unwanted signal elements in a portion of said signal (**see ¶ [0041]; "…the time duration of the interference signals is substantially greater than the symbol duration T_s of the OFDM useful signal."**);
- (ii) generating a time domain window function using said established timing characteristics (**see ¶ [0065]; "The calculated window function has a so-called Nyquist edge in the time domain…"**), said time domain window function being a sinusoidal function (**see ¶ [0064]; "Nyquist window functions that can be implemented as cosine rolloff windows are used to reduce the spectral side lobes."**); and
- (iii) applying the generated window function to said signal portion to selectively reduce the amplitude of said unwanted signal elements relative to other elements of

said signal (**see ¶ [0065]; "In addition, the side lobes in the interference signal spectra are substantially reduced."**).

Bolinth does not specifically disclose having a sinusoidal window with zero crossings substantially coinciding with the position of each unwanted signal element.

However, Dey discloses having a sinusoidal window with zero crossings substantially coinciding with the position of each unwanted signal element (**see figure 1, channel estimator 140 and ¶ [0017]; "…the channel estimator may substantially zero filter coefficients associated with a channel impulse response that mostly contain noise."**).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the invention of Bolinth as taught by Nakamura and have a sinusoidal window with zero crossings substantially coinciding with the position of each unwanted signal element, thus allowing a more efficient way to perform channel estimation (**Dey, ¶ [0015]**).

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bolinth in view of Gardner as applied to claim 1 above, and further in view of Daspit et al. (U.S. Patent No. 3,754,101).

Regarding claim 3:

The combination of Bolinth and Dey discloses a method according to claim 1, further comprising the steps of:

- (iv) applying a Fourier transform to the signal output from step (iii) (**see Bolinth ¶ [0072]; "The signal thus produced and illustrated in part c) is transformed into the frequency domain with the aid of an FFT…"**).

However, the combination of Bolinth and Dey does not specifically disclose: (v) applying an algorithm to restore the shape of peaks in the transformed signal to an approximation of their form in the absence of said unwanted signal elements.

Daspit, however, discloses applying an algorithm to restore the shape of peaks in the transformed signal to an approximation of their form in the absence of said unwanted signal elements (**see col. 4, lines 21-24 and 40-44 where Daspit discusses double sideband suppressed carrier amplitude modulation**).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the invention of Bolinth and Dey as taught by Daspit and apply an algorithm to restore the shape of peaks in the transformed signal to an approximation of their form in the absence of said unwanted signal elements, thus allowing the retaining of only the useful spectral elements (**Daspit, col. 4, lines 36-40**).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GINA MCKIE whose telephone number is (571)270-5148. The examiner can normally be reached on Mon-Fri, 9:00 AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gina McKie/
Examiner, Art Unit 2611
/Shuwang Liu/
Supervisory Patent Examiner, Art Unit 2611